5 3 5, 4 6 6

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification[7]: **G06T 17/00**

(21) International Application Number:
PCT/IB2003/005168

(22) International Filing Date:
14 November 2003 (14.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02292884.0   20 November 2002 (20.11.2002)   EP

(71) Applicant (for all designated States except US): **KONIN-KLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and
(75) Inventors/Applicants (for US only): **FRADKIN, Maxim** [IL/FR]; 156 Boulevard Haussmann, F-75008 Paris (FR). **ROUET, Jean-Michel** [FR/FR]; 156 Boulevard Haussmann, F-75008 PARIS (FR). **MAKRAM-EBEID, Shérif** [FR/FR]; 156 Boulevard Haussmann, F-75008 PARIS (FR).

(74) Agent: **LOTTIN, Claudine**; Société Civile SPID, 156 Boulevard Haussmann, F-75008 Paris (FR).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
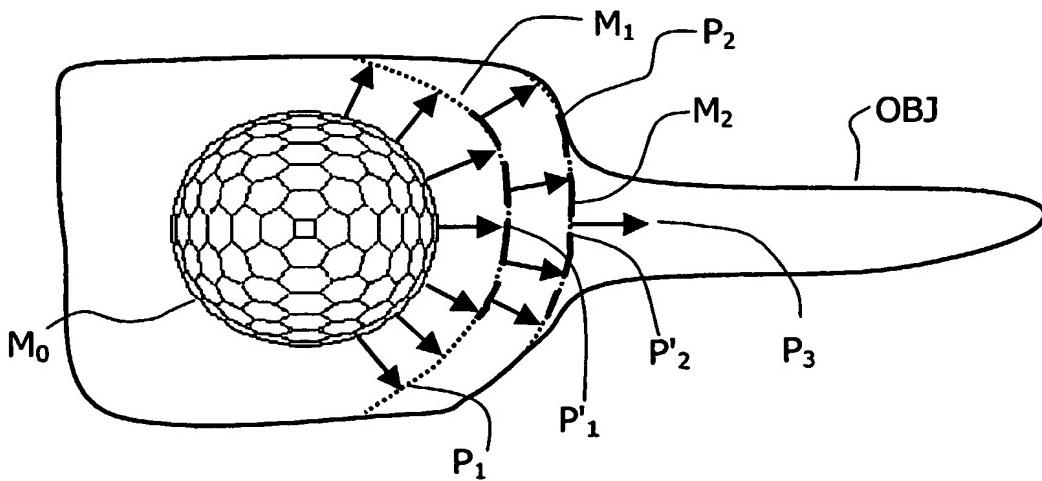
(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,

(54) Title: IMAGE PROCESSING SYSTEM FOR AUTOMATIC ADAPTATION OF A 3-D MESH MODEL ONTO A 3-D SURFACE OF AN OBJECT

(57) Abstract: An image processing system having means of automatic adaptation of 3-D surface Model to image features, for Model-based image segmentation, comprising: dynamic adaptation means for adapting the Model resolution to image features including locally setting higher resolution when reliable image features are found and setting lower resolution in the opposite case. This system comprises estimation means for estimating a feature confidence parameter for each image feature. The model resolution is locally adapted according to said parameter. The feature confidence parameter depends on the feature distance and on the estimation of quality of this feature including estimation of noise. The large distances and the noisy, although close features are penalized. The resolution of the Model is decreased in absence of confidence and is gradually increased with the rise of feature confidence.